**SVKM's**
**D. J. Sanghvi College of Engineering**

**Program: B.Tech in Information Technology** **Academic Year: 2022** **Duration: 3 hours**
**Date: 09.01.2023**
**Time: 10:30 am to 01:30 pm**
**Subject: Service Oriented Architecture (Semester VII)** **Marks: 75**

**Instructions: Candidates should read carefully the instructions printed on the question paper and on the cover page of the Answer Book, which is provided for their use.**
**(1)** This question paper contains two pages.
**(2) All Questions are Compulsory.**
(3) All questions carry equal marks.
**(4) Answer to each new question is to be started on a fresh page.**
**(5) Figures in the brackets on the right indicate full marks.**
**(6) Assume suitable data wherever required but justify it.**
**(7)** Draw neat, labelled diagrams, wherever necessary.

| Question No. | | Max. Marks |
|---|---|---|
| Q1 (a) | Sketch a typical distributed internet architecture and compare it with service-oriented architecture. | [10] |
| Q1 (b) | Justify the statement: "Contemporary SOA supports a service-oriented business modeling paradigm." | [05] |
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| Q2 (a) | What is service orientation? Outline the common principles of service orientation. | [10] |
| Q2 (b) | How the components of a service-oriented architecture relate? Explain the same with a proper diagram.<br>**OR**<br>What is service reusability and service contract? Explain how service reusability interrelates with other service orientation principles? | [05] |
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| Q3 (a) | Explain the role of a Message Exchange Pattern in enabling communication between systems and describe how different MEPs support different messaging scenarios.<br>**OR**<br>Draw and explain the four message exchange patterns that are supported by WSDL 1.1. | [10] |
| Q3 (b) | What are the key differences between Asynchronous and Synchronous message handling, and when should each approach be used?<br>**OR**<br>What is WS-Security and how does it support the secure exchange of messages between systems? | [05] |
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| Q4 (a) | Explain the phases of the Service Life Cycle and discuss the key activities and considerations in each phase. | [10] |
| Q4 (b) | List the primitive and structured activities supported by BPEL. | [05] |
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| Q5 (a) | What do you understand by the terms Marshalling and Unmarshalling in JAXB? Write down the steps to perform Marshalling. Also, list the pros and cons of using JAXB.<br>**OR**<br>Discuss the evolution of software architecture from monolithic to microservices and explain the key advantages and disadvantages of each approach. | [10] |
| Q5 (b) | What is an XML registry? List minimum 3 functionalities provided by registries.<br>**OR**<br>How does service-to-service authentication and authorization work in a microservices architecture? | [05] |